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L3	10	l2 and decrypt\$6	US-PGPUB; USPAT	OR	ON	2005/03/30 07:18
L5	1	l2 and counter same pixel	US-PGPUB; USPAT	OR	ON	2005/03/30 09:00
L6	29	digital adj watermark\$3 same counter	US-PGPUB; USPAT	OR	ON	2005/03/30 09:01
L7	29	digital adj watermark\$3 and counter same pixel	US-PGPUB; USPAT	OR	ON	2005/03/30 09:01
L8	208	digital adj watermark\$4 and (counter or threshold same compar\$6)	USPAT	OR	ON	2005/03/30 10:41
L9	142	digital adj watermark\$4 and (counter or threshold same compar\$6 same average)	USPAT	OR	ON	2005/03/30 10:41
S1	2662	digital adj watermark\$6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 11:12
S2	955	digital adj watermark\$6 and (area or position) and (encrypt\$6 or decrypt\$6 or crypto\$8)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 11:13
S3	254	digital adj watermark\$6 and (area or position) and (encrypt\$6 or decrypt\$6 or crypto\$8) and intensity and compar\$6	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 15:23
S4	2	"5530759".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 13:52
S5	124	digital adj watermark\$6 and (area or position) and (encrypt\$6 or decrypt\$6 or crypto\$8) and intensity and compar\$6	USPAT	OR	ON	2005/03/29 14:01
S6	121	rhoads.in. and digimarc.as.	USPAT	OR	ON	2005/03/29 14:02
S7	59	rhoads.in. and digimarc.as. and digital adj watermark\$6 and (area or position) and (encrypt\$6 or decrypt\$6 or crypto\$8) and intensity and compar\$6	USPAT	OR	ON	2005/03/29 14:02
S8	65	S5 not S7	USPAT	OR	ON	2005/03/29 14:03
S9	91	"4776013"	US-PGPUB; USPAT	OR	ON	2005/03/29 14:14
S10	1	"4776013".pn.	US-PGPUB; USPAT	OR	ON	2005/03/29 14:14
S11	698	digital adj watermark\$6 and average	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 15:24

S12	414	digital adj watermark\$6 and average and (encrypt\$6 or decrypt\$6 or crypto\$8)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 15:24
S13	158	digital adj watermark\$6 and average and number adj2 pixel	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/03/29 15:24
S14	79	digital adj watermark\$6 and average and number adj2 pixel	USPAT	OR	ON	2005/03/29 17:38
S15	32	(US-20020009208-\$ or US-20030091189-\$).did. or (US-5659726-\$ or US-5710834-\$ or US-5734752-\$ or US-5748763-\$ or US-5748783-\$ or US-5819289-\$ or US-5875249-\$ or US-6049627-\$ or US-6101602-\$ or US-6330335-\$ or US-6430302-\$ or US-6463162-\$ or US-6675146-\$ or US-6721438-\$ or US-6757405-\$ or US-6807285-\$ or US-6850910-\$ or US-6618489-\$ or US-5949055-\$ or US-6711276-\$ or US-6137892-\$ or US-6175639-\$ or US-5915027-\$ or US-6252971-\$ or US-6519350-\$ or US-6317505-\$).did. or (US-5721788-\$ or US-6823455-\$ or US-5825892-\$ or US-6633653-\$).did.	US-PGPUB; USPAT	OR	ON	2005/03/29 16:23
S16	31	S15 and (area or position)	US-PGPUB; USPAT	OR	ON	2005/03/29 16:24
S17	24	S16 and (encrypt\$6 or decrypt\$6 or crypto\$8)	US-PGPUB; USPAT	OR	ON	2005/03/29 16:24
S18	21	S17 and average	US-PGPUB; USPAT	OR	ON	2005/03/29 16:24
S19	3	S18 and counter	US-PGPUB; USPAT	OR	ON	2005/03/29 16:43
S20	1261	713/176.CCLS.	US-PGPUB; USPAT	OR	ON	2005/03/29 16:43
S21	617	713/176.CCLS.	USPAT	OR	ON	2005/03/29 16:44
S22	617	713/176.CCLS.	USPAT	OR	ON	2005/03/29 16:44
S23	163	713/176.CCLS. AND DIGITAL ADJ WATERMARK\$6	USPAT	OR	ON	2005/03/29 17:19
S24	69	713/176.CCLS. AND DIGITAL ADJ WATERMARK\$6 AND AVERAGE	USPAT	OR	ON	2005/03/29 17:20
S25	41	713/176.CCLS. AND DIGITAL ADJ WATERMARK\$6 AND AVERAGE AND ENCRYPT\$6	USPAT	OR	ON	2005/03/29 17:20
S26	78	digital adj watermark\$6 and average and number adj2 pixel	US-PGPUB	OR	ON	2005/03/29 17:39
S27	2103593	digital adj watermark\$6 and average and number adj2 pixel LINE	USPAT	OR	ON	2005/03/29 17:39
S28	61	digital adj watermark\$6 and average and number adj2 pixel AND LINE	USPAT	OR	ON	2005/03/29 17:39
S29	1	"5825892".pn. and average and encrypt\$6	US-PGPUB; USPAT	OR	ON	2005/03/29 17:46
S30	1	"5825892".pn. and average and encrypt\$6 and (area or position)	US-PGPUB; USPAT	OR	ON	2005/03/29 17:46



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1 [Robust digital watermarking: The digital watermarking container: secure and efficient embedding](#)

Martin Steinebach, Sascha Zmudzinski, Fan Chen

 September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

 Full text available: [pdf\(357.96 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

While acceptance of digital watermarking as a technology to protect digital media is constantly increasing, integrated applications are still comparatively rare. Two reasons are the challenge of secure key handling due to the symmetric nature of digital watermarking and the often high demand regarding computational power to embed a watermarking into a media file. We introduce a possible solution to this problem, the digital watermarking container. It splits the watermarking process in a preproce ...

Keywords: complexity, container, optimization, security, watermarking

2 [In business today and tomorrow](#)

Jian Zhao, Eckhard Koch, Chenghui Luo

July 1998 **Communications of the ACM**, Volume 41 Issue 7
 Full text available: [pdf\(527.15 KB\)](#) Additional Information: [full citation](#), [references](#), [citing](#), [index terms](#), [review](#)

3 [Columns: Public policy: new on-line surveys and digital watermarking](#)

Bob Ellis

February 1999 **ACM SIGGRAPH Computer Graphics**, Volume 33 Issue 1
 Full text available: [pdf\(101.91 KB\)](#) Additional Information: [full citation](#)

4 [Watermarking cyberspace](#)


Hal Berghel

November 1997 **Communications of the ACM**, Volume 40 Issue 11
 Full text available: [pdf\(1.70 MB\)](#) Additional Information: [full citation](#), [citing](#), [index terms](#)

5 [A functional taxonomy for software watermarking](#)

Jasvir Nagra, Clark Thomborson, Christian Collberg

January 2002 **Australian Computer Science Communications , Proceedings of the twenty-fifth Australasian conference on Computer science - Volume 4**,
Volume 24 Issue 1

Full text available:  [pdf\(1.19 MB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Despite the recent surge of interest in digital watermarking technology from the research community, we lack a comprehensive and precise terminology for software watermarking. In this paper, we attempt to fill that gap by giving distinctive names for the various protective functions served by software watermarks: Validation Mark, Licensing Mark, Authorship Mark and Fingerprinting Mark. We identify the desirable properties and specific vulnerabilities of each type of watermark, and we illustrate ...

Keywords: authentication, fingerprint, software authorship, software licensing, steganography, watermark

6 Authentication II: Audio watermarking algorithm for real-time speech integrity and authentication

Song Yuan, Sorin A. Huss

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(259.52 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Data integrity and source origin authentication are essential topics for real-time multimedia systems. But traditional method, such as MAC, is not very applicable to overcome the distortion introduced in real-time multimedia communication. In this paper a new integrity mechanics deploying speech watermarking is presented. The advocated approach adopts public key encryption to efficiently generate non-repudiate speech. In the last part of the article, a speech watermarking algorithm incorporating ...

Keywords: integrity and source origin authentication, real-time multimedia communication and internet telephony, speech watermarking

7 DOS protection: Robust correlation of encrypted attack traffic through stepping stones by manipulation of interpacket delays

Xinyuan Wang, Douglas S. Reeves

October 2003 **Proceedings of the 10th ACM conference on Computer and communications security**

Full text available:  [pdf\(331.63 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Network based intruders seldom attack directly from their own hosts, but rather stage their attacks through intermediate "stepping stones" to conceal their identity and origin. To identify attackers behind stepping stones, it is necessary to be able to correlate connections through stepping stones, even if those connections are encrypted or perturbed by the intruder to prevent traceability. The timing-based approach is the most capable and promising current method for correlating encrypted connections ...

Keywords: correlation, intrusion tracing, robustness, stepping stones

8 Robust digital watermarking: A high capacity watermarking system for digital maps

Gerrit Schulz, Michael Voigt

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(959.68 KB\)](#)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper presents a way to embed watermarks into 2D vector data. The watermarking system provides a high capacity and is robust against the following attacks: polyline simplifications like the Douglas-Peucker algorithm [1], moving and cropping of data and

addition of small amounts of random noise. The system is designed for adding information to digital maps. The attacks mentioned above can happen during the daily work with these maps, so the watermark will not be destroyed by working with the ...

Keywords: 2D vector data, digital maps, watermarking

9 Robust mesh watermarking

Emil Praun, Hugues Hoppe, Adam Finkelstein

July 1999 **Proceedings of the 26th annual conference on Computer graphics and interactive techniques**

Full text available:  pdf(2.08 MB) Additional Information: [full citation](#), [references](#), [citings](#), [index terms](#)

Keywords: copyright protection, steganography

10 Robust digital watermarking: Digital image watermarking using complex wavelet transform

Nataša Terzija, Walter Geisselhardt

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  pdf(713.64 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In this paper a new robust digital image watermarking method based on the Complex Wavelet Transform is presented. For improving its robustness features in the algorithm design the Error Correction Code is used. The technique is performed in spatial domain. The Complex wavelet transform is firstly used to adapt the watermark to the local image activity by using the visual masking. Secondly it is implemented to select the embedding space (embedding channels). The two embedding channels are obtained ...

Keywords: attacks, complex wavelet transform, image processing, robust algorithms, watermarking

11 Biometrics, watermarking, IKE: Component-based digital watermarking of Chinese texts

Xingming Sun, Gang Luo, Huajun Huang

November 2004 **Proceedings of the 3rd international conference on Information security**

Full text available:  pdf(427.96 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

According to the types of the host media, digital watermarking may be classified mainly as image watermarking, video watermarking, audio watermarking, and text watermarking. The principle of the three watermarking research fields are similar in that they make use of the redundant information of their host media and the characteristics of human video system or human audio system. Unfortunately, text has no redundant information. Text watermarking techniques are totally different from them. And the ...

Keywords: chinese character, component, digital watermarking, mathematical expression, robust, text watermarking

12 Watermarking relational data: framework, algorithms and analysis

Rakesh Agrawal, Peter J. Haas, Jerry Kiernan

August 2003 **The VLDB Journal — The International Journal on Very Large Data Bases**, Volume 12 Issue 2

Full text available:  pdf(223.17 KB) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Abstract. We enunciate the need for watermarking database relations to deter data piracy,

identify the characteristics of relational data that pose unique challenges for watermarking, and delineate desirable properties of a watermarking system for relational data. We then present an effective watermarking technique geared for relational data. This technique ensures that some bit positions of some of the attributes of some of the tuples contain specific values. The specific bit locations and value ...

Keywords: Database, Information hiding, Steganography, Watermarking

13 A robust blind watermarking scheme based on distributed source coding principles

Jim Chou, Sandeep Pradhan, Kannan Ramchandran

October 2000 **Proceedings of the eighth ACM international conference on Multimedia**

Full text available:  [pdf\(835.98 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We propose a powerful new solution to the multimedia watermarking problem by exploiting its duality with another problem for which we have recently made pioneering constructive contributions. This latter problem is that of distributed source coding, or compression of correlated sources that are distributed. We show how these two seemingly unrelated problems are actually duals of each other. We exploit this duality by transforming our recently introduced powerful constructive framework for the ...

Keywords: data hiding, digital watermarking, multimedia security

14 Watermarking algorithms: Exploiting self-similarities to defeat digital watermarking systems: a case study on still images

Gwenaél Doërr, Jean-Luc Dugelay, Lucas Grangé

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(1.27 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Unauthorized digital copying is a major concern for multi-media content providers. Since copyright owners lose control over content distribution as soon as data is decrypted or unscrambled, digital watermarking has been introduced as a complementary protection technology. In an effort to anticipate hostile behaviors of adversaries, the research community is constantly introducing novel attacks to benchmark watermarking systems. In this paper, a generic block replacement attack will be presented. ...

Keywords: block replacement attack, intra-signal collusion, self-similarities

15 Session 3A: Optimal probabilistic fingerprint codes

Gábor Tardos

June 2003 **Proceedings of the thirty-fifth annual ACM symposium on Theory of computing**

Full text available:  [pdf\(254.76 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We construct binary codes for fingerprinting. Our codes for n users that are ϵ -secure against c pirates have length $O(c^2 \log(n/\epsilon))$. This improves the codes proposed by Boneh and Shaw [3] whose length is approximately the square of this length. Our codes are probabilistic. By proving matching lower bounds we establish that the length of these codes is best within a constant factor for reasonable error probabilities. This lower bound generalizes the ...

Keywords: collusion-secure codes, cryptography, fingerprint

16 Security: Geometric distortion-resilient image hashing system and its application scalability

Chao-Yong Hsu, Chun-Shien Lu

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(1.07 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Media hashing is an alternative approach to many applications previously accomplished with watermarking. The major disadvantage of the existing media hashing technologies is their poor resistance to geometric attacks. In this paper, a novel geometric distortion-invariant image hashing scheme, which can be employed to perform copy detection and content authentication of digital images, is proposed. Our major contributions are threefold: (i) mesh-based robust hashing function is proposed; (ii) sop ...

17 Authentication II: Fragile watermarking scheme based on the block-wise dependence in the wavelet domain

Huayin Si, Chang-Tsun Li

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(474.23 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In transform-domain fragile watermarking schemes for authentication purposes, a common practice is to watermark some selected transform coefficients in order to achieve low embedding distortion. However, we point out in this work that leaving most of the coefficients, usually the low frequency and zero-valued ones, unmarked opens wide security gap for attacks to be mounted on them. In this work, a fragile watermarking scheme is proposed to implicitly watermark all the coefficients by registering ...

Keywords: fragile watermarking, multimedia security, non-deterministic block-wise dependence, selective embedding algorithm

18 Assurance in life/nation critical endeavors: Assurance in life/nation critical endeavors a panel

Steven J. Greenwald, Marv Schaefer

September 2002 **Proceedings of the 2002 workshop on New security paradigms**

Full text available:  [pdf\(509.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Our thesis is that biometric and other intertwined technologies will be used to supplement the work of people in the security field. When these technologies are used, we fear that a high degree of misinterpretation and error is likely. Because of this, we need to identify the technical measures required for these systems. This thesis, along with a justification, and proof sketch, was given to the panelists. Five areas of the technology life-cycle were investigated: modeling, implementation, inter ...

19 Watermarking algorithms: Wavelet-based blind watermarking of 3D models

F. Uccheddu, M. Corsini, M. Barni

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(462.47 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Watermarking of 3D meshes has received a limited attention due to the difficulties encountered in extending the algorithms developed for 1D (audio) and 2D (images and video) signals to topological complex objects such as meshes. Other difficulties arise from the wide variety of attacks and manipulations 3D watermarks should be robust to. For this reason, most of the 3D watermarking algorithms proposed so far adopt a non-blind detection. In this paper we present a new blind watermarking algorithm ...

Keywords: 3D watermarking, 3D wavelets, blind detection, copyright protection, mesh watermarking

20

Technical session 13: managing images: An efficient parts-based near-duplicate and

sub-image retrieval system

Yan Ke, Rahul Sukthankar, Larry Huston

October 2004 **Proceedings of the 12th annual ACM international conference on
Multimedia**Full text available:  [pdf\(573.85 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We introduce a system for near-duplicate detection and sub-image retrieval. Such a system is useful for finding copyright violations and detecting forged images. We define near-duplicate as images altered with common transformations such as changing contrast, saturation, scaling, cropping, framing, etc. Our system builds a parts-based representation of images using *<i>distinctive local descriptors</i>* which give high quality matches even under severe transformations. To cope with the ...

Keywords: interest points, local image descriptors, locality-sensitive hashing (LSH), near-duplicate image detection, sub-image retrieval

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1 [Extended abstract: An image watermark algorithm based on discrete cosine transform block classifying](#)

Zhao Yuehua, Cai Guixian, Du Yunhai

November 2004 **Proceedings of the 3rd international conference on Information security**Full text available: [pdf\(101.69 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper provides a digital watermark algorithm based on block classifying picture. Through the experience, the algorithm shows better robust than others. The watermarked picture has stronger resistance to image operating.

Keywords: block classifying, digital watermark, discrete cosine transform (DCT)

2 [Technical trials and legal tribulations](#)

Scott Craver, Boon-Lock Yeo, Minerva Yeung

July 1998 **Communications of the ACM**, Volume 41 Issue 7Full text available: [pdf\(641.01 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

3 [Data security and protection: Rights protection for relational data](#)

Radu Sion, Mikhail Atallah, Sunil Prabhakar

June 2003 **Proceedings of the 2003 ACM SIGMOD international conference on Management of data**Full text available: [pdf\(229.76 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Protecting rights over relational data is of ever increasing interest, especially considering areas where sensitive, valuable content is to be outsourced. A good example is a data mining application, where data is sold in pieces to parties specialized in mining it. Different avenues for rights protection are available, each with its own advantages and drawbacks. Enforcement by legal means is usually ineffective in preventing theft of copyrighted works, *unless* augmented by a digital counter ...

4 [In business today and tomorrow](#)

Jian Zhao, Eckhard Koch, Chenghui Luo

July 1998 **Communications of the ACM**, Volume 41 Issue 7Full text available: [pdf\(527.15 KB\)](#) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#), [review](#)

5 How to bypass the Wassenaar arrangement: a new application for watermarking

Franck Leprévost, Raphaël Erard, Touradj Ebrahimi

November 2000 **Proceedings of the 2000 ACM workshops on Multimedia**

Full text available:  pdf(419.24 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


The scope of this article is to clarify the current legal and political situation related to electronic surveillance on the one hand, and to export regulations for encryption software on the other hand. We will look at different international agreements, such as the UKUSA agreement and the Wassenaar arrangement, and elaborate on current encryption techniques falling under these regulations. This discussion is then followed by introducing the basic concepts of steganography and digital waterma ...

Keywords: Wassenaar arrangement, cryptography, steganography, watermarking

6 An abstract interpretation-based framework for software watermarking

Patrick Cousot, Radhia Cousot

January 2004 **ACM SIGPLAN Notices , Proceedings of the 31st ACM SIGPLAN-SIGACT symposium on Principles of programming languages**, Volume 39 Issue 1

Full text available:  pdf(171.12 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Software watermarking consists in the intentional embedding of indelible stegosignatures or watermarks into the subject software and extraction of the stegosignatures embedded in the stegoprograms for purposes such as intellectual property protection. We introduce the novel concept of *abstract software watermarking*. The basic idea is that the watermark is hidden in the program code in such a way that it can only be extracted by an abstract interpretation of the (maybe non-standard) concrete ...

Keywords: abstract interpretation, authentication, copyrights protection, fingerprinting, identification, intellectual property protection, obfuscation, software authorship, software watermarking, static analysis, steganography, stegoanalyst, stegoattacks, stegokey, stegomark, stegosignature, tamper-proofing, trustworthiness, validation watermarking

7 Robust techniques for watermarking sequential circuit designs

Arlindo L. Oliveira

June 1999 **Proceedings of the 36th ACM/IEEE conference on Design automation**

Full text available:  pdf(145.39 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

8 Authentication II: Fragile watermarking scheme based on the block-wise dependence in the wavelet domain

Huayin Si, Chang-Tsun Li

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  pdf(474.23 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

In transform-domain fragile watermarking schemes for authentication purposes, a common practice is to watermark some selected transform coefficients in order to achieve low embedding distortion. However, we point out in this work that leaving most of the coefficients, usually the low frequency and zero-valued ones, unmarked opens wide security gap for attacks to be mounted on them. In this work, a fragile watermarking scheme is proposed to implicitly watermark all the coefficients by registering ...

Keywords: fragile watermarking, multimedia security, non-deterministic block-wise dependence, selective embedding algorithm

9 Attack and evaluation: Overcoming the obstacles of zero-knowledge watermark detection

André Adelsbach, Markus Rohe, Ahmad-Reza Sadeghi

September 2004 **Proceedings of the 2004 multimedia and security workshop on Multimedia and security**

Full text available:  [pdf\(236.53 KB\)](#) . Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Standard watermarking schemes suffer from a major problem: They require to reveal security critical information to potentially untrusted parties, when proving the presence of a watermark to these parties. Zero-knowledge watermark detection is a promising means to overcome this problem and to improve the security of digital watermarking schemes in the context of various applications: it allows to cryptographically conceal the information required for the detection of a watermark and to prove the ...

Keywords: interactive generation of commitments on Gaussian distributed samples, statistical tests on committed numbers, zero-knowledge protocols, zero-knowledge watermark detection

10 Broadcast and on-line cultural heritage: Copyright protection and management and a web based library for digital images of the Hellenic cultural heritage

Dimitris K. Tsolis, George K. Tsolis, Emmanouil G. Karatzas, Theodore S. Papatheodorou

November 2001 **Proceedings of the 2001 conference on Virtual reality, archeology, and cultural heritage**

Full text available:  [pdf\(358.69 KB\)](#) . Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The main issue addressed in this paper is the design and implementation of an Advanced Digital Image Repository, which offers specialized services and a Dedicated User Interface for the protection and management of the Intellectual Property Rights of digitized material. In addition, another main research area of this contribution is the implementation of a Web Based Library, supported by advanced technologies, for the proper presentation of the digital cultural content. The work described in thi ...

Keywords: copyright protection, databases, digital web archives, information systems, java applets, watermarking

11 Software engineering for security: a roadmap

Premkumar T. Devanbu, Stuart Stubblebine

May 2000 **Proceedings of the Conference on The Future of Software Engineering**

Full text available:  [pdf\(1.71 MB\)](#) . Additional Information: [full citation](#), [references](#), [citings](#), [index terms](#)

Keywords: copy protection, security, software engineering, water-marking

12 A secure multicast protocol with copyright protection

Hao-hua Chu, Lintian Qiao, Klara Nahrstedt, Hua Wang, Ritesh Jain

April 2002 **ACM SIGCOMM Computer Communication Review**, Volume 32 Issue 2

Full text available:  [pdf\(301.97 KB\)](#) . Additional Information: [full citation](#), [abstract](#), [references](#), [citings](#), [index terms](#)

We present a simple, efficient, and secure multicast protocol with copyright protection in an open and insecure network environment. There is a wide variety of multimedia applications that can benefit from using our secure multicast protocol, e.g., the commercial pay-per-view video multicast, or highly secure military intelligence video conference. Our secure multicast protocol is designed to achieve the following goals. (1) It can run in any open

network environment. It does not rely on any sec ...

Keywords: copyright protection, key distribution, multicast security, watermark

13 Assurance in life/nation critical endeavors: Assurance in life/nation critical endeavors a panel

Steven J. Greenwald, Marv Schaefer

September 2002 **Proceedings of the 2002 workshop on New security paradigms**

Full text available:  [pdf\(509.28 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Our thesis is that biometric and other intertwined technologies will be used to supplement the work of people in the security field. When these technologies are used, we fear that a high degree of misinterpretation and error is likely. Because of this, we need to identify the technical measures required for these systems. This thesis, along with a justification, and proof sketch, was given to the panelists. Five areas of the technology life-cycle were investigated: modeling, implementation, inter ...

14 Electronic commerce: a half-empty glass?

Sasa Dekleva


June 2000 **Communications of the AIS**

Full text available:  [pdf\(343.49 KB\)](#) Additional Information: [full citation](#), [references](#)

15 HyperNews: a MEDIA application for the commercialization of an electronic newspaper

Jean-Henry Morin, Dimitri Konstantas

February 1998 **Proceedings of the 1998 ACM symposium on Applied Computing**

Full text available:  [pdf\(2.74 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

Keywords: agents, copyright protection, electronic publishing

16 Watermaking three-dimensional polygonal models

Ryutarou Ohbuchi, Hiroshi Masuda, Masaki Aono

November 1997 **Proceedings of the fifth ACM international conference on Multimedia**

Full text available:  [pdf\(1.69 MB\)](#) Additional Information: [full citation](#), [references](#), [citings](#), [index terms](#)

Keywords: copyright protection, data hiding, digital fingerprinting, digital watermaking, steganography, three-dimensional geometrical modeling, three-dimensional graphics

17 Atomicity in electronic commerce

J. D. Tygar

May 1998 **netWorker**, Volume 2 Issue 2

Full text available:  [pdf\(225.48 KB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

18 DRM experience: Analysis of security vulnerabilities in the movie production and distribution process

Simon Byers, Lorrie Cranor, Dave Korman, Patrick McDaniel, Eric Cronin

October 2003 **Proceedings of the 2003 ACM workshop on Digital rights management**

Full text available:  [pdf\(285.80 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citings](#), [index](#)

[terms](#), [review](#)

Unauthorized copying of movies is a major concern for the motion picture industry. While unauthorized copies of movies have been distributed via portable physical media for some time, low-cost, high-bandwidth Internet connections and peer-to-peer file sharing networks provide highly efficient distribution media. Many movies are showing up on file sharing networks shortly after, and in some cases prior to, theatrical release. It has been argued that the availability of unauthorized copies directl ...

Keywords: digital rights management, file sharing, insider attacks, multimedia, physical security, policy

19 Emerging applications: DRM: doesn't really mean digital copyright management

L. Jean Camp

November 2002 **Proceedings of the 9th ACM conference on Computer and communications security**

Full text available:  [pdf\(258.91 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Copyright is a legal system embedded in a larger technological system. In order to examine the functions of copyright it is critical to examine the larger technological context of copyright: analog media and printed paper in particular. The copyright system includes both the explicit mechanisms implemented by law and the implicit mechanisms resulting from the technologically determinant features of paper and print. In order to prevent confusion between the legal, technical, and economic elements ...

Keywords: DRM, DeCSS, copyright, design for values, ethics, fair use, intellectual property, science and technology studies

20 Columns: Risks to the public in computers and related systems

Peter G. Neumann

July 2001 **ACM SIGSOFT Software Engineering Notes**, Volume 26 Issue 4

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IEEE JNL IEE Journal or Magazine

IEEE CNF IEEE Conference Proceeding

IEEE CNF IEE Conference Proceeding

IEEE STD IEEE Standard

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